AMENDMENTS TO THE CLAIMS

Please amend the claims as detailed below

1. – 31. (Cancelled)

32. (New) An apparatus comprising:
a die including at least one integrated circuit and a surface;
a heat exchanger; and
a thermal management device having
a case with a plate attached to the surface of the die and a cavity, and
a porous medium disposed within the cavity of the case and attached to the plate, the thermal management device to allow for a fluid to flow through said porous medium to thermally couple the die to the heat exchanger.

33. (New) The apparatus of claim 32, wherein the porous medium is attached to an entire face of the plate that is exposed within the cavity.

34. (New) The apparatus of claim 32, wherein the at least one integrated circuit causes a non-uniform heat distribution over the surface of the die when in operation and the porous medium being configured based at least in part on said non-uniform heat distribution.

35. (New) The apparatus of claim 34, wherein the porous medium is configured with an area having a plurality of pores elongated in a direction.

36. (New) The apparatus of claim 32, wherein the fluid is a selected one of air, water, and perfluorinated liquid.

37. (New) The apparatus of claim 32, wherein the porous medium includes a porous metal foam.

38. (New) The apparatus of claim 32, wherein the porous medium includes a plurality of pore channels with a pore diameter that is substantially at or between 50 μm – 1 mm.

39. (New) The apparatus of claim 32, wherein the die includes a first area having a first thermal energy output and a second area having a second thermal energy output, which is different than the first thermal energy output, and the porous medium including a first portion, corresponding to the first area, having a first average pore diameter and a second portion, corresponding to the second area, having a second average pore diameter, which is different than the first average pore diameter.

40. (New) The apparatus of claim 32, wherein the porous medium includes a porosity that is substantially at or above 80%.

41. (New) The apparatus of claim 32, wherein the case includes:
an inlet coupled to a pump;
an outlet coupled to the heat exchanger; and
the pump to facilitate fluid flow through the porous medium toward the heat exchanger.

42. (New) The apparatus of claim 41, wherein the pump is to facilitate a fluid flow at rate to result in a two-phase fluid flow.

43. (New) The apparatus of claim 32, wherein the surface is a first surface of the die and the apparatus further comprises:
a substrate coupled to a second surface of the die, which is opposite the first surface.

44. (New) The apparatus of claim 32, wherein said fluid flow through said porous medium is primarily induced by natural buoyancy resulting from the fluid absorbing thermal energy output from the die.

45. (New) The apparatus of claim 44, wherein the case hermetically encompasses the porous medium.

46. (New) An apparatus comprising:
a die including at least one integrated circuit;
a heat exchanger; and
a thermal management device having a case including a cavity and a mircroporous medium attached to the die and disposed within the cavity, the thermal management device to allow for a fluid to flow through said porous medium to thermally couple the die to the heat exchanger.

47. (New) The apparatus of claim 46, further comprising:
a sealant to at least facilitate a watertight seal between the case and the die.

48. (New) The apparatus of claim 46, wherein the porous medium is attached to the die with a thermal interface material.

49. (New) The apparatus of claim 46, wherein the die has a length, a width, and a height, and the porous medium has a length and a width that are approximately equal to the length and the width of the die.

50. (New) A method comprising:

operating an integrated circuit within a die, leading to heat being sourced from the die; and

flowing a fluid through a porous medium housed in and filling a cavity of a case that is attached to the die, to transfer thermal energy away from the die.

51. (New) The method of claim 50, wherein said operating of the integrated circuit further leads to heat being sourced in a first amount from a first area and a second amount from a second area, the first amount being different from the second amount resulting in a relatively high-pressure portion of the porous medium corresponding to the first area and a relatively low-pressure portion of the porous medium corresponding to the second area and the method further comprises:

equilibrating an overall pressure of the liquid flowing through the porous medium.

52. (New) The method of claim 50, wherein the porous medium includes a plurality of pore channels with a pore diameter that is substantially at or between 50 μm – 1 mm.

53. (New) The method of claim 50, wherein said flowing of a fluid is induced by natural buoyancy resulting from heated portions of the fluid.

54. (New) A system comprising:

an electronic assembly including:

a die including at least one integrated circuit and a surface;

a heat exchanger; and

a thermal management device having

a case with a plate attached to the surface of the die and a cavity, and

a porous medium disposed within the cavity of the case and attached to the plate, the thermal management device to allow for a fluid to flow through said porous medium to thermally couple the die to the heat exchanger;

a dynamic random access memory coupled to the at least one integrated circuit; and

an input/output interface coupled to the at least one integrated circuit.

55. (New) The system of claim 54, wherein the porous medium includes a plurality of pore channels with a pore diameter that is substantially at or between 50 μm – 1 mm.

56. (New) The system of claim 54, wherein the die includes a first area having a first thermal energy output and a second area having a second thermal energy output, which is different than the first thermal energy output, and the porous medium including a first portion, corresponding to the first area, having a first average pore diameter and a

second portion, corresponding to the second area, having a second average pore diameter, which is different than the first average pore diameter.

57. (New) The system of claim 54, wherein the system is a set-top box, an entertainment unit, or a digital versatile disk player.

58. (New) The system of claim 54, wherein the input/output interface comprises a networking interface.